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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,292	11/17/2000	Takatoshi Yamanaka	1080.1084 (JDH)	4924

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EXAMINER

MILLER, RYAN J

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 11/20/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/714,292

Applicant(s)

YAMANAKA ET AL.

Examiner

Ryan J. Miller

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because a) reference character "502" of Fig. 19 has been used to designate both a curve and a histogram and b) reference characters "i1" in Fig. 29 and "j1" in the specification have both been used to designate the first step in the process depicted in Fig. 29. The drawings are also objected to as failing to comply with 37 CFR 1.84(p)(5) because a) they do not include the following reference sign(s) mentioned in the description: step "a" mentioned at page 30, line 23 of the specification is not in Fig. 7 and b) they include the following reference sign(s) not mentioned in the description: step "b2" of Fig. 9.

Specification

2. The disclosure is objected to because of the following informalities: A description of Tables 1-3 in the specification is not provided. Although the specification states that the content of the tables 1 to 3 will be described below on page 20, lines 16-17, no such description was found.

Appropriate correction is required.

The examiner also requests a copy of the convolution algorithm described at page 30, lines 16-18, page 36, lines 19-22, and page 38, lines 23-24.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2621

4. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are replete with difficult language and antecedent problems that render them indefinite. A few of these problems will be illustrated below; however, a complete review of the claims for any additional problems is required.

Claim 1, as well as claims 2, 15, and 16, calls for a “photography device type” and a “photography part”. These elements, while mentioned in the disclosure, are not clearly defined. What is a “photography device type”? Where is it defined in the specification? Is the “photography device type” the type of imager used to capture the radiographic image? Or, is it the type of medical image that is captured? Furthermore, what is the “photography part”? Where is it defined in the specification? Is the “photography part” the part of the body that is imaged? Or, is it the part of the radiographic image that is used in the image analysis? An answer to these questions is required in order to determine the metes and bounds of the claims.

Claims 1 and 2 also recite the limitation "the read image processing condition" in line 18. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 calls for a wherein clause that is unintelligible. The language in this clause is confusing and difficult to understand. Revision of this clause is required.

Claim 11 calls for the limitations “designating a scanning processing of setting the area of interest on the medical image” and “in response to designation of the scanning processing by said scanning processing designating section”. These limitations are grammatically awkward and difficult to understand. A revision of this claim is required.

Art Unit: 2621

Claim 13 recites the limitations “the same area of interest”, “the same position”, “the same timing” and “the scanning processing”. There is insufficient antecedent basis for this limitation in the claim.

As stated above, these examples are merely a sample of the problems with the claims, and a complete review of the claims is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 and 5-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogura et al. (U.S. Patent No. 6,502,984 B2).

As applied to claim 2, which is representative of claims 1 and 14, Ogura et al. discloses an image processing apparatus for subjecting a medical image to an image processing, comprising: an image processing condition storing section for storing an image processing condition when the medical image is subjected to the image processing in accordance with a photography device type and a photography part when the medical image is obtained (see Fig. 29 and column 16, lines 42-46, and column 17, lines 9-14: The reference describes an image process condition determining means for determining and storing the image processing condition for the radiation image based on the irradiation field size (i.e. photography device type) and the photography portion of the object (i.e. photography part); a data obtaining section for obtaining

Art Unit: 2621

the medical image, and the photography device type and the photography part when the medical image is obtained (see Fig. 29: Reference numeral 71 referring to a radiographic image photographing means (i.e. a data obtaining section); and an image processing section for reading the image processing condition for the same photography device type and photography part as the photography device type and photography part obtained by said data obtaining section from said image processing condition storing section, and subjecting the medical image obtained by said data obtaining section to the image processing in accordance with the read image processing condition (see Fig. 29 and column 15, lines 49-53: The reference describes an image process means 73 (i.e. an image processing section) which processes the radiation image based on the irradiation field size (i.e. photography device type) and the photography portion of the object (i.e. photography part) input from the image process conditions determining means 75).).

As applied to claim 3, Ogura et al. discloses that the image processing section subjects the medical image obtained by said data processing section to at least a gradation conversion processing and a frequency emphasis processing (see column 15, lines 49-54: The reference describes that the image process means 73 subjects the image to processing including gradation correction and frequency emphasis.), and said image processing condition storing section stores a frequency emphasis function indicating a degree of frequency emphasis in which a gradation conversion function and an average density around respective points of the medical image are used as variables in accordance with the photography device type and the photography condition (see Fig. 29: As can be see from the figure, the image process 73 means obtains information (i.e. the photography device type and the photography condition) from the image process condition determining means 75.).

Art Unit: 2621

As applied to claim 5, Ogura et al. discloses an image processing condition operating section for adding, changing, and deleting said image processing condition in response to an operation (see column 16, lines 42-67: The reference describes that the image process condition determining means can comprise an irradiation field determining means or posture determining means at any given time. Therefore, a device is used to change, add, or delete one of these conditions.).

As applied to claim 6, Ogura et al. discloses an image display section for displaying the medical image subjected to the image processing by said image processing section (see column 18, line 45: The reference describes that the processed image can be displayed on a television monitor (i.e. image display section).).

As applied to claim 7, which is representative of claim 8, Ogura et al. discloses an interested area designating section for designating a desired area of interest on the medical image displayed in said image display section in response to the operation, wherein said image display section lowers a luminance of an area excluding the area of interest designated by said interested area designating section to display the medical image (see Fig. 32: From this figure it can be seen that a designated area of the medical image B1 has been displayed and that the luminance of an area excluding the area of interest B1 has been lowered as can be seen by area B2.).

As applied to claim 9, which is representative of claim 10, Ogura et al. discloses a part recognizing section for recognizing positions of a plurality of parts appearing in one medical image, wherein said image processing section subjects the area of interest designated by said interested area designating section to the image processing in accordance with the part appearing in the area of interest among the parts recognized by said part recognizing section (see column

Art Unit: 2621

17, lines 9-27: The reference describes that photograph portion determining means (i.e. parts recognizing means) that determines a part based on a comparison with template parts (i.e. a plurality of parts).).

As applied to claim 11, which is representative of claims 12 and 13, Ogura et al. discloses a scanning processing designating section for designating a scanning processing of setting the area of interest on the medical image displayed in said image display section and moving the area of interest in a predetermined direction in response to the operation, wherein said image display section displays the medical image in which the area of interest successively moves, and the luminance of the area excluding the area of interest is lowered in response to designation of the scanning processing by said scanning processing designating section (see column 16, lines 42-54: The reference describes a movable aperture stop (i.e. a scanning processing designating section) for determining an irradiated region B1 (i.e. designating a scanning processing of setting the area of interest on the medical image displayed in said image display section). This aperture stop can be moved to any region of interest that is desired.).

As applied to claim 15, which merely calls for the method performed by the apparatus of claim 2, since Ogura et al. disclose the apparatus, the method performed by the apparatus is also disclosed.

As applied to claim 16, which merely calls for an image processing program storage medium in which a program for operating a computer system as an image processing apparatus as described in claim 2, Ogura et al. discloses such an image processing program storage medium since all of the image processing in Ogura et al. is performed by computer.

Art Unit: 2621

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ogura et al. (U.S. Patent No. 6,502,984 B2) and Ogura (U.S. Patent No. 6,314,198 B1). The arguments as to the relevance of Ogura et al. in the rejection of claims 1-3 above are incorporated herein.

Claim 4 calls for the image processing section to subject the medical image obtained by the data obtaining section to a luminance correction processing using a dynamic range compression function in which the average density around the respective points of the medical image is used as the variable. Although Ogura et al. discloses a variety of image processing techniques such as gradation correction and frequency emphasis, the reference does not disclose the use of luminance correction processing. However, Ogura, in the same field of endeavor of image processing and the same problem solving area of radiation images discloses the use of luminance correction processing (see column 36, lines 20-30: The reference describes a luminance correction processing using a dynamic range compression processing function which uses the average density as a factor.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ogura et al. by adding the luminance correction processing as

Art Unit: 2621

taught in Ogura because this type of processing allows the "optimum image processing for the radiographic, digital image without troubling the operator".

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takasawa (U.S. Patent No. 6,542,579 B1) is pertinent in that it discloses a method of display X-ray images based on the device type used to obtain the image and the angle of the imaging device.

Takashi (Japanese Published Patent Application No. 08-111816) is pertinent in that it discloses a medical image display device that highlights regions of interest.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Miller whose telephone number is (703) 306-4142. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.


Ryan J. Miller

Ryan J. Miller
Examiner
Art Unit 2621


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